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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/758,610	01/15/2004	Jim L. Wong	7784-000222DVA	6155
65961 7590 12/10/2007 HARNESS DICKEY & PIERCE, PLC P.O. BOX 828 BLOOMFIELD HILLS, MI 48303			EXAMINER TSOY, ELENA	
			ART UNIT 1792	PAPER NUMBER
			MAIL DATE 12/10/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/758,610

Applicant(s)

WONG ET AL.

Examiner

Elena Tsoy

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 20 November 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,3-17 and 19-26 is/are pending in the application.
- 4a) Of the above claim(s) 22-25 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-17,19-21 and 26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

***Response to Amendment***

Amendment filed on November 20, 2007 has been entered. Claims 1, 3-17, and 19-26 are pending in the application. Claims 22-25 are withdrawn from consideration as directed to a non-elected invention.

***Claim Objections***

1. Objection to claim 3 because of the informalities has been withdrawn due to amendment.
2. Objection to claims 4-5, and 8-9 under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim has been withdrawn due to amendment.

***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Rejection of claims 1, 3-17, 19-21, and 26 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention has been withdrawn due to amendment.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1, 3-5 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Raevsky (US 5206088) for the reasons of record set forth in paragraph 7 of the Office Action mailed on 7/20/2007 since the amendment did not change the scope of invention.

8. Claims 6-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Raevsky for the reasons of record set forth in paragraph 8 of the Office Action mailed on 7/20/2007.

9. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Raevsky in view of Deogan et al (US 5,900,281) for the reasons of record set forth in paragraph 9 of the Office Action mailed on 7/20/2007.

10. Claims 11-17, 19-21, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Raevsky in view of Tzur (US 4,632,865) for the reasons of record set forth in paragraph 10 of the Office Action mailed on 7/20/2007 since the amendment did not change the scope of invention.

11. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Raevsky in view of Tzur, further in view of Deogan et al for the reasons of record set forth in paragraph 11 of the Office Action mailed on 7/20/2007.

*Response to Arguments*

12. Applicant's arguments filed November 20, 2007 have been fully considered but they are not persuasive.

REJECTION UNDER 35 U.S.C. §§ 102 AND 103Raevsky

(A) Applicants assert that Raevsky does not teach, suggest or disclose an intumescent material that is intermixed with only a portion of the thickness of the ablative material. The Office states that through the application of the intumescent paint, the paint can become intermixed with the formed ablative sheet as the ablative sheet is porous. Applicants respectfully assert that spraying a formed, hardened sheet with a liquid does not constitute intermixing as understood by one of ordinary skill in the art. In this regard, Applicants note that one of ordinary skill in the art would interpret the term "intermixed" to represent "to mix or become mixed together" and would interpret the term "mixed" to represent "to combine (substances, elements, things, etc.) into one mass, collection, or assemblage, generally with a thorough blending of the constituents" Random House Unabridged Dictionary (Random House, Inc. 2006). Thus, one of skill in the art would fairly interpret the term "intermixed" to represent various elements that are combined or blended together into one mass. Raevsky does not teach, suggest or disclose an intumescent material that is combined or blended together with only a portion of the thickness of the ablative material to form one mass or layer. Rather, Raevsky teaches coating a formed ablative sheet with an intumescent paint. Spraying a liquid intumescent paint onto a hardened, formed ablative sheet does not constitute intermixing as claimed.

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The Examiner respectfully disagrees with this argument. First of all, SM-F is made of 17 wt % of preformed (non-crosslinking) polymers and **83 wt %** of particles of aluminum sulfate hydrate which will stay particulate after roll milling at 70<sup>0</sup>C and compression molding into sheets so that it would be *porous* due to the presence of the particles. Clearly the solvent based intumescent paint sprayed over the SM-F would *penetrate* into the SM-F thereby forming a “combined mass, collection, or assemblage” of SM-F and the paint. Therefore, in contrast to Applicants argument, spraying a porous SM-F with a liquid would constitute intermixing as understood by one of ordinary skill in the art.

(B) Applicants argue that Claim 3 includes independently allowable subject matter as Raevsky does not teach, suggest or disclose that different quantities of the intumescent material are intermixed with the ablative material at different depths within the ablative material. Applicants also assert that Claim 4 includes independently allowable subject matter as Raevsky does not teach, suggest or disclose that the intumescent material is intermixed in different quantities, and operable to be applied in successive layers to the surface, so that the ablative composition is operable to be formed by a series of layers with the layers each having a different concentration of the intumescent material mixed therein.

The Examiner respectfully disagrees with this argument for the reasons discussed in paragraphs 7-8 of the Office Action mailed on 7/20/2007.

#### Raevsky in view of Tzur

Applicants argue that Tzur appears to disclose a multi layer fire retardant composition, which includes a hardener mixed completely to form the layers. Raevsky does not teach, suggest

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or disclose an intumescent material intermixed with a second quantity of the ablative material and operable to be applied as a second ablative layer on the first ablative layer. As noted by the Office, Tzur also does not teach, suggest or disclose an intumescent material intermixed with a second quantity of the ablative material and operable to be applied as a second ablative layer on the first ablative layer. Accordingly, for at least these reasons, Applicants respectfully assert that Raevsky and Tzur, singly or in combination, do not teach, suggest or disclose each and every element of Claim 13

The Examiner respectfully disagrees with this argument. In contrast to Applicants argument, primary reference of Raevsky does teach, suggest or disclose an intumescent material intermixed with a second quantity of the ablative material and operable to be applied as a second ablative layer on the first ablative layer, as was discussed in paragraphs 7-8 of the Office Action mailed on 7/20/2007. Tsur is a *secondary* reference which is relied upon to show that intumescent-ablator comprising a strong ablator containing cork (See column 3, lines 40-46) or a binder such as **epoxy** resin (See column 19, lines 55-57) combined with an intumescence agent provides better heat insulation properties than either of the systems by itself (See column 2, lines 34-42). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used an ablator containing hydrated inorganic salts, cork or **epoxy** resin in Raevsky since Tzur teaches that a strong ablator containing cork or a binder such as **epoxy** resin combined with an intumescent material is suitable for forming a thermal protection.

*Conclusion*

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elena Tsoy whose telephone number is 571-272-1429. The examiner can normally be reached on Monday-Thursday, 9:00AM - 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on 571-272-142323. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR



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system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Elena Tsoy  
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Art Unit 1762

ELENA TSOY  
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December 6, 2007